

## **Minutes of Meeting of Mine Emergency Communication Systems Partnership June 20, 2006**

The meeting was held at NIOSH-PRL, Building 140, and began at 9AM. In addition, others participated by teleconference and video conference.

Jeff Welsh, NIOSH, gave opening remarks and welcomed those present as well as those from Spokane Research Laboratory via Envision and those on conference call (see attached list of attendees). He stated the goals of the meeting as: 1) Update the Partnership on communication system demonstrations conducted at McElroy Mine, 2) Discuss MSHA evaluation of PED systems installed, 3) Discuss other communication system tests conducted by other Partner members, and 4) Discuss future plans.

Jeff mentioned that the new MINER Act that amends the Federal Mine Safety and Health Act of 1977 was signed last week. As part of that Act and related appropriations bill, \$10 million would be coming to NIOSH to fund extramural projects, a portion of which would be directed toward mine emergency communications and tracking. Under the MINER Act, post accident communication between underground and surface personnel via a wireless two-way medium, and an electronic tracking system permitting surface personnel to determine the location of any persons trapped underground would be required to be in place within three years. James Dean from West Virginia OMHST stated that communication and tracking systems must be in place by July, 2007 in West Virginia.

Dave Chirdon, MSHA, discussed MSHA visits to mines that have a Mine Site Technologies PED system installed. The pros and cons of the PED and tracker systems were noted. In addition, he talked about the results of the mine communication system demonstrations at McElroy Mine which are summarized on the MSHA web site. Of the more than 100 proposals received by MSHA for mine communications technologies, six systems were selected for initial evaluation. Testing looked at overburden penetration, distance between nodes, interference, coverage, and accuracy.

Wesley Shumaker, MSHA, discussed the McElroy test results in detail for the WiFi node-based Rajant Breadcrumb and Innovative Wireless systems, the ultrawide band Concurrent Technologies/Time Domain system, the Transtek and Gamma Services wireless systems, and the medium frequency Kutta Consulting system. The latter system was able to provide 2-way voice communication over 5,000 feet non-line-of-site in a track entry (a later test at another underground coal mine provided over 11,000 feet communication); the remaining systems propagated 1000-2000 feet for line-of-sight; and the Transtek wireless penetrated 270 feet of overburden with two way voice.

Discussions next focused upon other system evaluations. Wendel Christensen of Arch Coal said that they have looked at the following tracking and communication systems including: Marco, Conspec, Mine Site Technology, Mine Radio, and Tunnel Radio systems. John Burr, Consol Energy, said that they have looked at the Siemens cell phone system, a Motorola 2.5 GHz system, and the Stolar through-the-earth system. John

Gallick of Foundation Coal said that they have looked at a Becker system. Dave Beerbower, Peabody, said that in conjunction with CRC Research of Australia, they looked at a wireless system that uses nodes and a through-the-earth antenna that provides 2 way text for redundancy. Floyd Varley of NIOSH Spokane Research Laboratory discussed March tests of the Grace Industries 2-way wireless communication system at a silver mine in Idaho. This system would be used primarily by rescue teams.

Next, a general discussion took place on issues related to mine emergency communications and tracking. Some of the topics that led to further discussion included: Ken Sacks asked about the impact of FCC rules. Underground there should be no concern; interference on surface may be an issue. James Dean asked whether anyone is considering seismic systems. A manufacturer's rep asked about the system characteristics that mine operators are seeking. James Dean stated that the specifics are contained in the West Virginia rules. Bruce Watzman expressed a need for guidance from NIOSH and MSHA on post-accident tracking. Dave Beerbower said that due to time constraints we should integrate into existing systems. Ken Sacks stated a need for test protocol development for consistency in testing. Randy Harris said there is a need for performance specifications. James Dean expressed interest in collaborating with NIOSH on mine emergency communication issues.

As far as NIOSH plans for the \$10M for extramural funding, Jeff Welsh stated that NIOSH will move aggressively with a number of Request for Proposals (RFPs) that move promising communications and tracking technology into the mines ASAP. Research will look at what we can achieve in a short period of time and also new technologies for the longer term. In addition, RFPs will look at other aspects such as hardening and enhancing existing systems, compatibility, interference, and system integration. He stated that the partnership will be kept informed of the progress.

Welsh concluded the meeting with the following action items:

- Bill Schiffbauer's draft test protocol will be forwarded to the partnership for comment
- Dave Chirdon's and Wes Shumaker's powerpoint slides will be sent to the partnership
- A smaller working group will be formed to look at issues related to enhancing and hardening existing communications systems

The next face-to-face meeting will be scheduled in approximately 4-6 weeks to provide an update on extramural procurement actions and other communication system activities. If any news or activities, that may be of interest to the partnership, come up before the next meeting, let me know.

The meeting adjourned at 1:30PM.